

**What is claimed is:**

1) A radar emission absorbing material comprising a carbon foam  
having a dielectric constant of from about 2 to about 6 and an  
electrical resistivity in the range of between about  $1.E^{+00}$  ohm-cm and  
5 about  $1.E^{+06}$  ohm-cm.

2) The radar emission absorbing material of claim 1 wherein said carbon  
foam is derived from a member selected from the group consisting of:  
particulate coal, coal tar pitch, petroleum pitch and carbonized polymeric  
10 materials.

3) The radar emission absorbing material of claim 2 wherein said carbon  
foam is a coal-based carbon foam.

4) The radar emission absorbing material of claim 3 wherein said carbon  
foam is derived from particulate coal exhibiting a free swell index of between  
15 about 3.5 and 5.0.

5) The radar emission absorbing material of claim 4 wherein said  
20 particulate coal exhibits a free swell index of between about 3.75 and  
about 4.5

- 6) The radar emission absorbing material of claim 4 wherein said coal-based carbon foam is a semi-crystalline, largely isotropic, porous coal-based product having a density of between about 0.1 and about 0.8 g/cm<sup>3</sup> and produced from small diameter particulate coal exhibiting a free swell index of between about 3.75 and about 4.5.

*A* A method for producing a radar emission absorbing material comprising:

- A) comminuting coal exhibiting a free swell index of between about 3.5 and about 5.0 to a small particle size to form a particulate coal;
- B) heating said ground coal in a mold under a non-oxidizing atmosphere to a temperature of between about 300° C and about 600° C and soaking at this temperature for a period of from about 10 minutes to about 12 hours to form a green foam;
- C) controllably cooling said green foam;
- D) carbonizing said green foam to form a carbonized foam by heating to a temperature of between about 600°C and about 800°C for a period of from about 2 to about 30 minutes or until said carbonized foam exhibits a dielectric constant of between about 2 and about 6 and

an electrical resistivity of between about  $1.E^{+00}$  ohm-cm  
and about  $1.E^{+06}$  ohm-cm.

8) The method of claim 7 wherein said particulate coal exhibits a free  
swell index of between about 3.75 and about 4.5.

9) A radar emission absorbing material comprising a carbon foam  
manufactured by a process comprising:

A) comminuting coal exhibiting a free swell index of between  
about 3.5 and about 5.0 to a small particle size to form a  
particulate coal;

B) heating said ground coal in a mold under a non-oxidizing  
atmosphere to a temperature of between about 300° C and  
about 600° C and soaking at this temperature for a period  
of from about 10 minutes to about 12 hours to form a green  
foam;

C) controllably cooling said green foam;

D) carbonizing said green foam to form a carbonized foam by  
heating to a temperature of between about 600°C and about  
800°C for a period of from about 2 to about 30 minutes or  
until said carbonized foam exhibits a dielectric constant of  
between about 2 and about 6 and an electrical resistivity of  
between about  $1.E^{+00}$  ohm-cm and about  $1.E^{+06}$  ohm-cm.

**10) The radar emission absorbing material of claim 9 wherein said particulate coal exhibits a free swell index of between about 3.75 and about 4.5.**

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